

# FAX TRANSMISSION

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PAGES (Including Cover Sheet): 4 HARD COPY TO FOLLOW: ☐ YES ☒ NO

MESSAGE: Attached are materials for discussion for the interview for USSN 10/743,387 for Tuesday at 2 pm.

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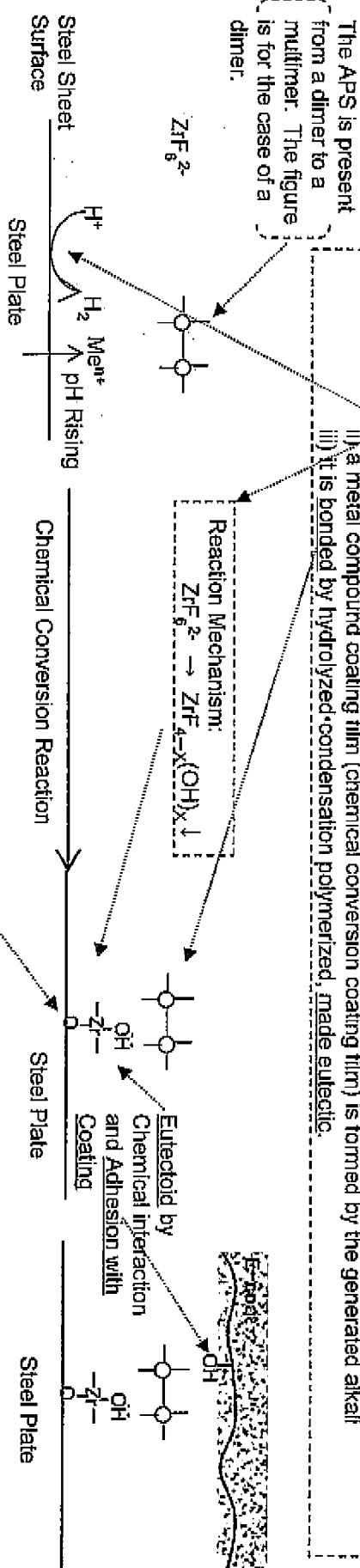
## [1] Mechanism in the Present Invention (10/743,387) (Reaction Type)

Treatment process  
of the present  
inventionDegreasing → Shower Washing → Chemical Conversion Treatment → Shower Washing → Pure Water Shower  
→ Cationic Electrodeposition Coating

Components: hydrolysis-polymerized aminosilane/fluorine

The coating film formed by the treatment process of the present invention is a "chemical conversion coating film" which does not wash away when washed (refer to below model diagram). It can be implemented by the reaction mechanism below, and is capable of carrying out uniform coating film formation on objects with complex shapes such as an automobile body.

The APS is present from a dimer to a multimer. The figure is for the case of a dimer.

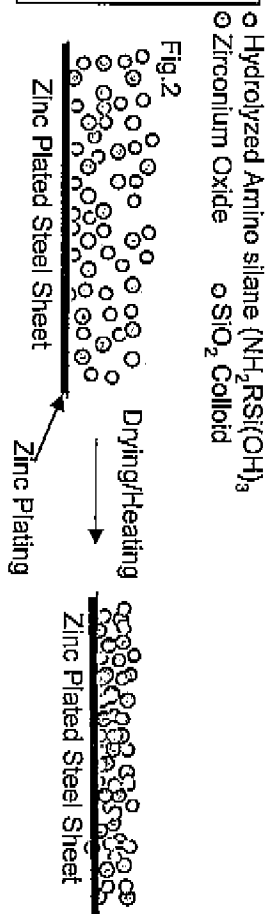


## Coating Film-Forming Process of the Citation (Coating Type)



Difference 1: The coating film of the coating type is formed by film formation of non-volatile components by heating/drying. It is unnecessary to make eutectic by changing the pH by a metal solution reaction as in the present invention, and it is unnecessary to stipulate a pH in the acidic region (there is no disclosure concerning the pH). On the other hand, in the reaction type mechanism of the present invention, the pH is an essential constituent element.

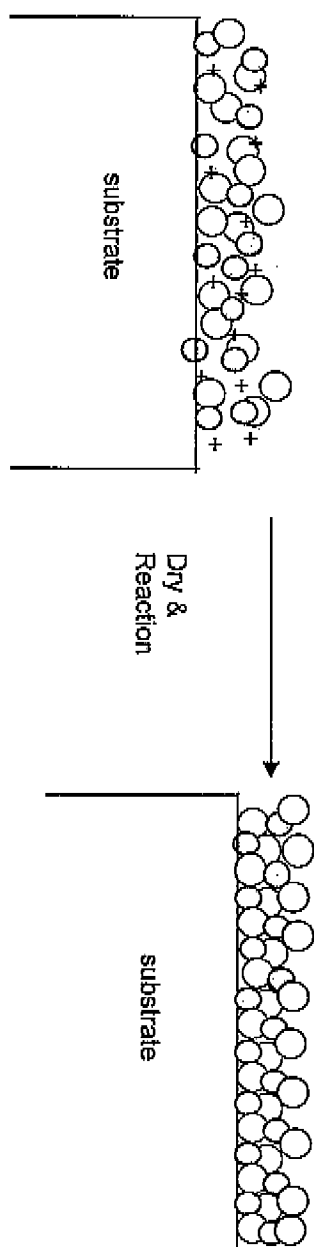
Difference 2: The coating type processing agent is for zinc plated steel sheets. On the other hand, the present invention can work with steel sheets that have not been metal plated.



[3] Concerning to the Citation (Nagashima) (Coating Type)

Coating Film Forming Process of the Citation (Coating Type)

- Water soluble resin
- <sup>+</sup> Cation (Added or dissolved from substrate)



As coated (before drying)

The cation works as "linking agent" during curing process followed by coating step. Namely the cations directly react with water-soluble polymer.

Nagashima et.al		Matsukawa	
Component	Role		Role
Water, and hydrophilic medium	Medium	X	
A At least two elements selected from a group of Mn, Co, Zn, Mg, Ni, Fe, Ti, Al, Zr	[0019-20] Film Forming Agent [0042-43] Curing acceleration by reaction with resin	X	Reaction controller. And de
B Fluoro-complex of Ti, Zr, Si, Hf, Al having more than 4 F atoms, and PO <sub>4</sub> , CH <sub>3</sub> COOH	[0021] Film Forming Agent [0042-43] Etching Agent	X	deposition on directly on CRS surface(H <sub>2</sub> ZrF <sub>6</sub> , H <sub>2</sub> TiF <sub>6</sub> , H <sub>2</sub> HfF <sub>6</sub> )
C Silane copuling agent selected from a group of amino-, epoxy, vinyl, methacryloxy	[0022-29] Film Forming Agent	X	
D Water soluble polymer describing (D)	[0022-30] Film Forming Agent Major component	O	
Application Method	Dip, spray, immersion etc	X	
Coating mechanism	Coating and dry	O	Conversion coating